

### **REMARKS**

This paper includes a complete and timely response to the FINAL Office Action mailed January 19, 2005. Claims 1 – 28 and 30 – 35 remain pending. Claim 28 has been amended.

#### **Claims 1-13, 20-26, and 33-35 are Allowed**

Applicant thanks the Examiner for indicating that Applicant's claims 1 – 13, 20 – 26, and 33-35 are allowed.

#### **Discussion of Rejection of Claims 27-28 Under 35 U.S.C. § 112, First Paragraph**

The Office Action rejected claims 27 and 28 under 35 U.S.C. § 112, first paragraph, as allegedly not described in the specification in a way to convey to one skilled in the art that the Applicant had "possession of the invention." Applicant respectfully disagrees. The Office Action objected to the added limitation of "the absolute value of the difference between the maximum picture element data value and the test result exceeds a predetermined threshold." In this regard, the Office Action has slightly misquoted the limitation. Claim 27 actually recites:

27. A method for identifying image artifacts introduced in a compressed and decompressed sub-region of an image, comprising:  
performing at least one statistical test over a plurality of picture element data values comprising the sub-region to generate a test result;  
determining a maximum picture element data value for the sub-region; and  
***determining when the absolute value of the difference between the maximum picture element data value and the test result exceeds a predetermined threshold.***

In support of this language, the specification states (see p. 15, lines 17-22): "The region discontinuity identifier 440 may be configured to generate the absolute value of the difference between both the min. and max. picture element data values within the region with the mean

picture element data value for the region. In addition, the region discontinuity identifier 440 may be configured to compare the differences with the image artifact detection threshold supplied by the controller 110 (FIG. 2).” (*Underlining added to illustrate support for the claim language.*)

The “mean picture element data value,” as described in the specification, should be understood (in this context) to be the claimed “test result.” In this respect, other portions of the specification state that a “statistical test” (other than a mean value) could be performed. Therefore, the claimed “test result” broadly encompasses a “mean” or other “statistical” test. The second sentence of the specification quoted above was not mentioned by the office, but clearly supports the comparison of the difference between the max picture element data value and test result with a predetermined threshold (e.g., the “image artifact detection threshold”). Accordingly, these two sentences of the specification clearly support the claim element as previously amended. For at least this reason, the rejection under 35 U.S.C. § 112, first paragraph, should be withdrawn.

#### **Discussion of Rejection of claims 14-19 and 30-32**

The Office Action has tentatively rejected claims 14-19 and 30-32 under 35 U.S.C. §102(e) as allegedly anticipated by Mancuso *et al.* (U.S. Patent No. 6,285,801), hereafter “*Mancuso*.” For at least the reasons set for below, Applicant respectfully disagrees and requests that these rejections be withdrawn.

Independent claim 14 recites:

14. An image processing system suited for post-processing compressed and decompressed images, the system comprising:  
*means for analyzing data associated with a plurality of picture elements comprising at least one image frame to identify portions of the at least one image frame that contain image artifacts;*

means for smoothing at least one data value associated with the plurality of picture elements in the identified sub-portion of the at least one image frame; and  
***means for assembling an image artifact reduced image comprising smoothed picture elements.***

(*Emphasis added.*)

In this regard, Applicant notes that the emphasized elements of claim 14 (like the other element) are set forth in means-plus-function format. Pursuant to 35 U.S.C. § 112(6), a claim element recited in means-plus-function format “shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.” 35 U.S.C. § 112, ¶ 6. The Federal Circuit has clearly endorsed this statutory mandate by holding that claims interpreted under 35 U.S.C. § 112, paragraph 6, are limited to the corresponding structure disclosed in the specification and its equivalents. Kahn v. General Motors Corp. 135 F.3d 1472, 45 U.S.P.Q.2d 1608 (Fed. Cir. 1998).

There should be no question but that the elements recited in claim 14 are to be construed pursuant to 35 U.S.C. § 112, paragraph 6. In Greenberg v. Ethicon Endo-Surgical Inc., 91 F.3d 1580, 39 U.S.P.Q. 2d 1783 (Fed. Cir. 1996), the Federal Circuit stated that the use of “means for” language generally invokes 112(6). Indeed, only if means-plus-function claim elements recite sufficient structure to carry out the function are they taken out of the ambit of 35 U.S.C. § 112, paragraph 6. Cole v. Kimberly-Clark Corp., 102 F.3d 524, 41 U.S.P.Q.2d 1001 (Fed. Cir. 1996).

Indeed, the Federal Circuit reiterated in Sage Products, Inc. v. Devon Industries, Inc., 126 F.3d 1420, 44 U.S.P.Q.2d 1103 (Fed. Cir. 1998) that “the use of the word ‘means,’ which is part of the classic template for functional claim elements, gives rise to ‘a presumption that the inventor used the term advisedly to invoke the statutory mandates for means-plus-function

clauses.” Ultimately, the Court in Sage construed the relevant claim elements under 35 U.S.C. § 112(6), because ‘means’ were recited, and the claim elements did not “explicitly recite[s] the structure, material, or acts needed to perform the [recited] functions. Sage at p. 1428. The Federal Circuit further acknowledged this presumption in Al-Site Corp. v. VSI International, Inc., 174 F.3d 1308, 50 U.S.P.Q.2d 1161 (Fed. Cir. 1999).

Thus, claim elements expressed in means-plus-function format are construed in accordance with 35 U.S.C. § 112, paragraph 6, as set forth above, and as further described in In re Donaldson 16 F.3d 1189, 29 U.S.P.Q.2d 1845 (Fed. Cir. 1994)(*en banc*). Therefore, the various “means” elements must be construed in accordance with the structure set forth in the present specification. In this regard, Applicant notes that, in In re Donaldson, The Board of Patent Appeals and Interferences advanced the legal proposition that “limitations appearing in the specification are *not* to be read into the claims of an application.” In re Donaldson at 1848. This argument, however, was rejected by the Federal Circuit, which held, as a matter of law, that “one construing means-plus-function language in a claim must look to the specification and interpret that language in light of the corresponding structure ... described therein, and equivalents thereof. In re Donaldson at 1848. Furthermore, the holding in In re Donaldson does not conflict with the principle that claims are to be given their broadest reasonable interpretation during prosecution. In re Donaldson at 1850.

The means-plus-function elements of claim 14 must be construed in accordance with Applicant’s specification. Presently, however, the Office Actions to date have offered no such construction to this claim. Instead, the Office Actions have focused exclusively on the functional language of this claim, and have offered no construction in accordance with the present specification.

For at least this reason, Applicant submits that the rejection of claim 14 should be withdrawn, as being incomplete and legally deficient.

Notwithstanding, and in an effort to advance the prosecution of this application, Applicant provides the following, further discussion and distinction with respect to this claim. With regard to the “means for analyzing...” element emphasized above, the Office Action cited col. 2, lines 45-46 and col. 4, lines 4-12 of *Mancuso* as allegedly anticipating this element. Applicant respectfully disagrees. In this regard, the cited portions of *Mancuso* actually state:

A filter, and in particular, a non-linear adaptive filter to reduce blocking artifacts is described herein....

...

FIG. 3 illustrates one image block 202 partitioned into several pixels, wherein a pixel is designated by 302. A target pixel 302i, i.e., the pixel to be processed using the filter 100, and neighboring pixels are defined by a sub-block of the image 100, called a processing window 304. The center of the processing window is moved from pixel to pixel starting, for example, at the top left corner, and an operator is applied to the pixels to determine the pixels' metrics. For example, FIG. 3 illustrates a 4\*8 processing window 304 with 32 pixels.

As can be readily verified from even a cursory review of the above-quoted (cited) portions, *Mancuso* fails to teach the claimed “means for analyzing data associated with a plurality of picture elements comprising at least one image frame to identify portions of the at least one image frame that contain image artifacts.” In this regard, this “means for analyzing...” element should be properly associated with the “artifact detector,” as described in the specification. In this regard, the specification describes that the artifact detector identifies picture element data discontinuity (see e.g., paragraph spanning pages 10 and 11). No such corresponding teaching is disclosed or suggested in the above-cited portions of *Mancuso*, and these relevant teachings of the Applicant’s specification cannot be ignored when properly construing the means-plus-

function elements of claim 14. For at least this reason, the rejection of claim 14 is misplaced and should be withdrawn.

As a separate and independent basis, claim 14 also defines “means for assembling...” which is not taught or disclosed in Mancuso. The Office Action merely cites the “output” shown in figure 1 of Mancuso as allegedly teaching this claimed feature. Applicant disagrees. The output of figure 1 is merely illustrated as a signal line out of a block labeled “De-Blocking System.” This teaching, however, falls far short of disclosing the “*means for assembling an image artifact reduced image comprising smoothed picture elements*,” particularly when this element is properly construed in accordance with the teachings of the specification.

For at least the foregoing reasons, the rejection of claim 14 is misplaced and should be withdrawn. Claims 15–19 depend from claim 14 and should be allowed for at least the same reasons.

The Office Action also tentatively rejected claims 30–32 under 35 U.S.C. §102(e) as allegedly being anticipated by Mancuso *et al.* (U.S. Patent No. 6,285,801), hereafter “*Mancuso*.” For at least the reasons set for below, Applicant respectfully disagrees and requests that these rejections be withdrawn.

Independent claim 30 recites:

30. An image processing system suited for post-processing compressed and decompressed images, the system comprising:

*means for analyzing data associated with a plurality of picture elements comprising at least one image frame to identify portions of the at least one image frame that contain image artifacts, the means for analyzing data comprising a region sensitivity value;*

*means for smoothing at least one data value associated with the plurality of picture elements in the identified sub-portion of the at least one image frame; and*

*means for assembling an image artifact reduced image comprising smoothed picture elements.*

*(Emphasis added.)*

The Office Action failed to set out or explain a separate rejection of this claim. In this regard, this claim appears to have been reject for exactly the same reasons as claim 14 (even though there are differences in the claim language. Applicant acknowledges that the element of this claim loosely correspond to the elements of claim 14. Nonetheless, the claims are different and the Office Action should have provided a separate and distinct application of the teachings of Mancuso to the elements of this claim. Absent such a separate treatment by the Office Action, Applicant responds by noting that claim 30 should be allowed for at least the same reasons as claim 14 (set forth above).

Claims 31 and 32 depend from claim 30, and the rejections of these claims should be withdrawn for at least the same reasons.

#### **Discussion Rejection of Claims 27 and 28 Under 35 U.S.C. § 102(b)**

The Office Action further indicates that claim 27 presently stands rejected under 35 U.S.C. §102(b) as allegedly being anticipated by Lakshminarayanan *et al.* (U.S. Patent No. 5,933,540), hereafter “*Lakshminarayanan.*”

In setting forth this rejection, the Office Action affirmatively stated that it did not consider the language of the claim (as previously amended). Applicant has shown above where the amended claim language is supported by the specification. Therefore, Applicant submits that claim 27 defines over the cited art for at least the same reason set forth in Applicant’s prior response. In this regard, the cited reference fails to disclose, teach, or suggest Applicant’s method for identifying image artifacts introduced in a compressed and decompressed sub-region of an image for at least the reason that the cited reference is silent regarding “*determining when*

*the absolute value of the difference between the maximum picture element data value and the test result exceeds a predetermined threshold.”* The statistical noise determination mechanism apparently disclosed from column 8, line 55 to column 10, line 7 of *Lakshminarayanan* does not describe a function that includes the absolute value of the difference between a maximum picture element data value and a statistical test result. Consequently, *Lakshminarayanan* cannot anticipate Applicant’s independent claim 27. Accordingly, Applicant respectfully requests that the rejection of claim 27 be withdrawn.

Concerning Applicant’s dependent claim 28, the cited art of record fails to disclose, teach, or suggest at least the feature of “determining when the absolute value of the difference between the minimum picture element data value and the test result exceeds a predetermined threshold.” The statistical noise determination mechanism apparently disclosed from column 8, line 55 to column 10, line 7 of *Lakshminarayanan* does not describe a function that includes the absolute value of the difference between a minimum picture element data value and a statistical test result. Consequently, *Lakshminarayanan* cannot anticipate Applicant’s dependent claim 28. Accordingly, Applicant respectfully requests that the rejection of claim 28 be withdrawn.

In addition, as the Office Action did not consider the Applicant’s prior remarks on claims 27 and 28, the FINAL status of this Office Action should be withdrawn. In addition, the failure (to date) of any Office Action to properly construe the “means-plus-function” claim elements in accordance with the corresponding structure, material, and acts described in the specification necessitates an alternative, proper construction by the PTO. Any such construction will constitute new grounds, not necessitated by any amendment, and thereby warrant the withdrawal of the status of FINAL.



**CONCLUSION**

Applicants respectfully submit that all claims are now in proper condition for allowance, and respectfully request that the Examiner pass this case to issuance. If, in the opinion of the Examiner, a telephonic conference would expedite the examination of this matter, the Examiner is invited to call the undersigned attorney at (770) 933-9500.

No fee is believed to be due in connection with this Amendment and Response to Office Action. If, however, any fee is deemed to be payable, you are hereby authorized to charge any such fee to Hewlett-Packard Company's Deposit Account No. 08-2025.

Respectfully submitted,

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